

SNI

Standar Nasional Indonesia

SNI 07-0065-2002

**Hot re-rolled steel bars for concrete
reinforcement**

ICS

National Standardization Body

BSN

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Foreword

The revision of Standar Nasional Indonesia (SNI) 07-0065-1990, *Hot re-rolled steel bars for concrete reinforcement*, was carried out with the intention to reduce the availability of non standard hot re-rolled steel bars for concrete reinforcement which is known as "besi beton banci" and to respond to proposals of the manufacturers of steel bars for concrete reinforcement, and also taking into consideration that since 1984 this standard has never been revised.

This standard was developed and prepared based on the results of technical meetings and a pre consensus meeting and finally deliberated in the consensus meeting on November 12th, 2001, this meeting was attended by representatives from manufactures, consumers, testing institutes and other related institutions.

This standard was developed and prepared by the Technical Committee on Iron and Steel Products – Centre for Standardization and Accreditation, Ministry of Industry and Trade and formulated according to BSN Guide (Pedoman BSN) No. 8, 2000, *Penulisan SNI*.

Hot re-rolled steel bars for concrete reinforcement

1 Scope

This standard covers, normative references, terms and definitions, quality requirements, sampling, marking, acceptance requirements and packaging of hot re-rolled steel bars for concrete reinforcement.

2 Normative references

SNI 07-0408-1989, *Cara uji tarik untuk logam*

SNI 07-0371-1998, *Batang uji tarik untuk logam*

SNI 07-0410-1989, *Cara uji lengkung tekan*

JIS 3117-87, *Re-rolled steel bars for concrete reinforcement*

3 Terms and definitions

3.1

hot re-rolled steel bars for concrete reinforcement.

steel in the form of round bars for concrete reinforcement made by a hot re-rolling process through recycling

3.2

hot re-rolling process

beneficiation of scrap steel to be processed into ready made products

3.3

steel scrap

miss hot rolled steel products and other steel products such as steel plates, steel pipes, steel rails and other products than can be further processed by hot rolling

3.4

nominal size

sizes determined in this standard

4 Quality requirements

4.1 Appearance

hot re-rolled steel bars for concrete reinforcement shall be free from folds, cracks, flashes, deep faults and shall not contain surface seams

4.2 Shape and size

4.2.1 Length

Hot re-rolled steel bars for concrete reinforcement shall be 6 m, 9 m and 12 m long with a tolerance of - 0, + 1%.

4.2.2 Cross section

Diameter, diameter tolerance and roundness deviation are shown in Table 1.

Table 1 Diameter tolerance and deviation of hot re-rolled steel bars for concrete reinforcement

Units: millimeter

No.	Designation	Nominal diameter (d)	Tolerance	Roundness deviation
1	R 6	6	± 0,4	70 % of total tolerance limit
2	R 8	8		
3	R 10	10		
4	R 12	12		

NOTE Roundness deviation is the difference between the maximum and minimum diameter value obtained from measurement at the same cross section location of the hot re-rolled steel bar for concrete reinforcement

4.3 Weight

4.3.1 Weight per meter and weight tolerance of hot re-rolled steel bars for concrete reinforcement are shown in Table 2.

Table 2 Weight per meter of hot re-rolled steel bars for concrete reinforcement

No.	Designation	Nominal diameter (d)	Tolerance	Weight tolerance
1	R 6	6	0,222	± 7 %
2	R 8	8	0,395	
3	R 10	10	0,017	± 6%
4	R 12	12	0,888	

4.3.2 The weight tolerance of a party of hot re-rolled steel bars for concrete reinforcement weighted as a batch against its theoretical weight according to Table 2 multiplied with the length and the number of rods is determined in Table 3

Table 3 Weight of a batch of hot re-rolled steel bars for concrete reinforcement

Nominal diameter (d) (mm)	Tolerance (%)
6 and 8	± 6
10 and 12	± 5

4.4 Mechanical properties

The mechanical properties of hot re-rolled steel bars for concrete reinforcement are shown in Table 4.

Table 4 Mechanical properties of hot re-rolled steel bars for concrete reinforcement

Steel class	Minimum Yield strenght kgf/mm ² (N/mm ²)	Minimum Tensile strenght kgf/mm ² (N/mm ²)	Minimum Elongation (%)	Bend test	
				Bend angle	Mandrel pin diameter
Bj. P 24	minimum 24 (235)	minimum 39 (380)	20	180°	3 x d
BjTP 30	minimum 30 (295)	minimum 45 (440)	18	180°	3 x d
NOTE Bend test result shall not show cracks at the outside surface of the bend portion $1 \text{ kg f/mm}^2 = 9,81 \text{ N/mm}^2$.					

5 Sampling

5.1 Sampling is carried out by authorized personnel

5.2 Sampling is carried out at random

5.3 The person in charge of taking samples shall be given free access by the manufacturer or trader to perform his duties

5.4 1 (one) meter length of sample taken from both ends of a hot re-rolled steel bar for concrete reinforcement and considered as 1 (one) sample and shall not be cut by flame cutting

5.5 From each batch of the same size up to the weight of 2 (two) tons one sample shall be taken, and for each multiple of 2 (two) tons one sample shall be added with a maximum of 10 (ten) samples.

6 Test methods

6.1 Appearance test

The appearance test is done visually without the aid of any instruments to identify the existence of defects as mentioned in 4.1

6.2 Measurement of diameter and weight

6.2.1 Measurement to determine the minimum and maximum diameter is done at 1 (one) location

6.2.2 Measurements are taken at 3 (three) different locations for 1 (one) sample and the average value calculated from the results.

6.2.3 The weight is determined by weighing (net weight) and recorded against the length of the sample.

6.3 Mechanical testing

6.3.1 The tensile and bending specimens shall be straight and the outside rolled skin shall not be removed

6.3.2 Number of test specimen

For each sample one tensile and bending test shall be carried out once and the minimum result is recorded.

6.3.3 Testing

6.3.3.1 Tensile test

Tensile testing is carried out according to SNI 07-0408-1989, *Cara uji tarik untuk logam*, with a sample conforming to SNI 07-0371-1998, *Batang uji tarik untuk bahan logam) batang uji tarik no. 2*). To calculate the elongation and tensile strength of the hot re-rolled steel bars for concrete reinforcement the cross sectional area is calculated based on the nominal diameter of the sample

6.3.3.2 Bend test

Bend test is carried out according to SNI 07-0410-1989, *Cara uji lengkung tekan*.

7 Marking

7.1 Every hot re-rolled steel bar for concrete reinforcement shall be marked with embossed letters denoting the manufacturers initials and designation as shown in Table 1 and 2.

7.2 All hot re-rolled steel bars for concrete reinforcement ends shall be color marked with permanent paint denoting the steel class as shown in Table 5.

Table 5

Table of color marking of hot re-rolled steel bars for concrete reinforcement

Steel class	Color
Bj R 24 (tidak jelas)
Bj R 30	Brown

7.3 Each package shall be labeled as follows:

7.3.1 Name and initial of the manufacturer

7.3.2 Dimensions (diameter and length)

7.3.3 Steel class

7.3.4 Production serial number and date of manufacture

7.3.5 SNI number

8 Acceptance requirements

8.1 A batch is accepted whenever the test samples conform to 4 (Acceptance requirements) and 7.1.

8.2 Failure of any test specimen to comply with the requirements shall constitute grounds for a retest using 2 times (twice) the number of initial specimens used which originate from the same batch

8.3 Whenever the second test shows that all the requirements are fulfilled, the batch is accepted. The batch is rejected whenever after the retest any one of the requirements is not fulfilled.

9 Packaging

9.1 Hot re-rolled steel bars for concrete reinforcement of similar size, shall be bundled and tightly, properly and strongly tied up.

9.2 Hot, bended re-rolled steel bars for concrete reinforcement and of similar length shall be tightly, properly and strongly tied up.

9.3 Each package shall be labeled according to the requirements of 7.3













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